PMOC MONTHLY REPORT

Honolulu Rail Transit Project

City and County of Honolulu
Honolulu Authority for Rapid Transportation (HART)
Honolulu, HI

October 2021 Report

Submitted to Region 9 – November 8, 2021

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Length of Time PMOC Assigned to Project: *43 months*
Length of Time PMOC Lead Assigned to Project: *43 months*

TABLE OF CONTENTS

1.0 EXECUTIVE SUMMARY 3
1.1 Project Description 3
1.2 Project Status 3
1.3 Major Issues and/or Concerns 4
1.4 Status of Key Indicators Dashboard 7
1.5 Core Accountability Items 8

2.0 BODY OF REPORT 10
2.1 Summary of Monitoring Activities 10
2.2 Oversight Triggers 10
2.3 Project Management Plan (PMP) and Sub-Plans 10
2.4 Management Capacity and Capability (MCC) 11
2.5 NEPA Process and Environmental Mitigation 12
2.6 Project Delivery Method and Procurement 12
2.7 Design 12
2.8 Value Engineering and Constructability Reviews 13
2.9 Real Estate Acquisition and Relocation 13
2.10 Third Party Agreements and Utilities 13
2.11 Construction - Status of Primary Construction Contracts: 14
2.12 Vehicle Technology and Procurement 18
2.13 Project Cost 18
2.14 Project Schedule 20
2.15 Project Risk 20
2.16 Quality Assurance/Quality Control 20
2.17 Safety and Security 21
2.18 Americans with Disabilities Act (ADA) 21
2.19 Buy America 21
2.20 Start-Up, Commissioning, Testing 22
2.21 Before-and-After Study Reporting 22
2.22 Lessons Learned 22
2.23 Action Items 23

3.0 APPENDICES 24
Appendix A: Acronym List
Appendix B: Safety and Security Checklist Contract Status
Appendix C: Top 5 Project Risks
Appendix D: Awarded Contracts
Appendix E: Rolling Stock Vehicle Status
Appendix F: Project Milestones/Key Events
Appendix G: Roadmap to Revenue Service
Appendix H: Project Overview and Maps
Appendix I: PMOC Team
Appendix J: Third Party Agreements
Appendix K: Cost Comparison Table

1.0 EXECUTIVE SUMMARY

This October 2021 report for the Federal Transit Administration (FTA) covers the progress of the Honolulu Rail Transit Project during the period generally from September 1 through September 30, 2021. This report is based on data in the "September 2021 Monthly Progress Report" of the Honolulu Authority for Rapid Transportation (HART). A full project Progress Meeting was not held in October due to several key activities being undertaken by HART during the late October early November 2021 timeframe.

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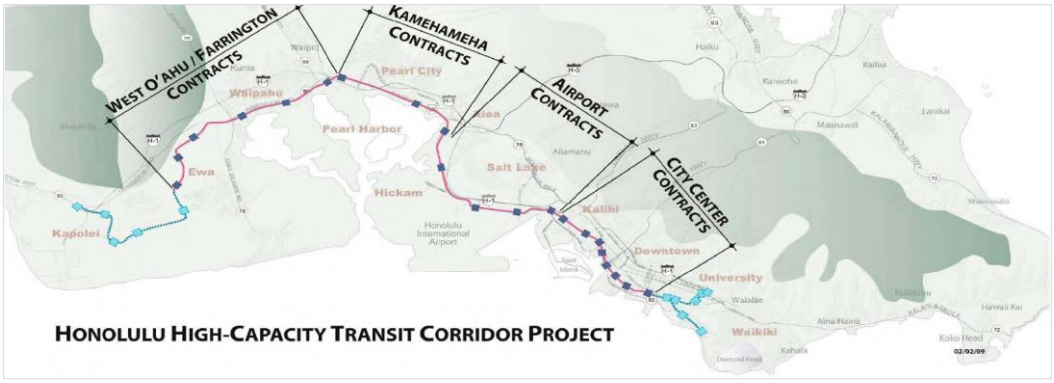
1.1 Project Description

General Description: The Project is a 20-mile-long fixed guideway rail system along Oahu's south shore between East Kapolei and Ala Moana Center. The Project includes 21 stations. The alignment is elevated, except for a 0.6-mile at-grade portion at the Leeward Community College station. The Project Sponsor plans to deliver the project in four guideway sections as described and shown in the figure below. See also the map in Appendix H to this report.



• Section I	West Oahu/Farrington Highway	East Kapolei to Pearl Highlands	7 miles	6 stations
• Section II	Kamehameha Highway	Pearl Highlands to Aloha Stadium	4 miles	3 stations
• Section III	Airport	Aloha Stadium to Middle Street	5 miles	4 stations
• Section IV	City Center	Middle Street to Ala Moana Center	4 miles	8 stations

Length:	20 miles	**Additional Facilities:**	Maintenance & Storage and parking facilities
No of Stations:	21	**Rail Vehicles:**	80 vehicles in 20 four-car consists
		FFGA Ridership Forecast	*Weekday boardings – 100,600*[1]

1.2 Project Status

[1] Revised projected ridership for 2030 as reported on November 2, 2021 Peer Review.

- *Project progress percentages, shown in the next table, were reported by HART in their September 2021 Monthly Progress Report. All categories made slight progress since the August report.*

Project Progress	Actual Completion Last Month	Actual Completion	Late Plan Completion*
Overall	62.8%	*63.3%*	*73.8%*
Design	81.9%	*82.1%*	*90.2%*
Construction	58.4%	*59%*	*70.8%*
**Based on HART's S-curve late plan with data as of September 30, 2021.*			

HART's Estimate at Completion (EAC) for total project cost as reported in the September Monthly Progress Report is $11.371 billion, $12.074 billion when FFGA eligible financing costs are included. HART's project progress curves are based on a target Operational Readiness Date (RSD) of December 31, 2025; however, HART is currently revising the progress curves further to incorporate the latest Estimate at Completion and the March 2031 Operational Readiness date. HART indicated that this change would be incorporated in the HART October 2021 Progress Report. This revision will lower the plan values to show the project on pace to complete within the revised schedule. *There was no change in the EAC values in September*.

1.3 Major Issues and/or Concerns

Major Issue	
Summary of Issue/Concern	**City Center delays are affecting the Critical path for the project**: The City Center Guideway and Stations (CCGS) work is dependent on receiving access through sites cleared by the City Center Utilities Relocation (CCUR) contract. The CCUR contract remains on the "Critical Path" for the full RSD. The Dillingham Boulevard Portion of the City Center section (Area 1) of the project is driving the critical path. HART continues to progress the design of Area 1. Areas 2-6 have significant float and should not affect the overall project schedule.
Date Identified	*No specific date due to ongoing schedule changes.*
Status	Area 1 requires significant re-design as well as additional right-of way. Completion of design (Plans Issued for Construction) for Area 1 is anticipated in May 2022. *The current HART schedule shows a construction NTP in October 2022.* HART is exploring opportunities to expedite the design approval process. **The CCUR contract is the most critical work on the project. Any delay on the CCUR work in Area 1 will delay the full Revenue Service Date**.

Project Sponsor Action	HART is attempting early coordination with the reviewing departments to try to expedite the review process without trying to circumvent complete reviews. HART and the City recognize the importance of this project and are working much better together than in previous years.
PMOC Recommendation	The PMOC recommends continued monitoring of progress on the CCUR design and the re-procurement for Area 1 (Dillingham Boulevard).
Major Issue	
Summary of Issue/Concern	**Project Cost, Schedule, and Budget**: HART presented its updated EAC during the March 31 EAC/Schedule meeting. The updated cost exceeds that in the approved June 2019 Recovery Plan and is not supported by the identified project revenue sources. Additionally, the projected RSD is well beyond the June 2019 Recovery Plan date of September 2026.
Date Identified	March 2021
Status	The HART EAC remains $11.37 billion without financing costs, and $12.074 billion with FFGA eligible financing; the HART projected schedule for Revenue Service for the full 20-mile system is March 2031. (No change.)
Project Sponsor Action	HART and the City are evaluating phasing scenarios for completing the project within their revenue constraints. HART contracted with the consulting firm Triunity to perform an independent cost and schedule analysis on the remaining work required to complete the full FFGA scope of the project. *The draft report was due at the end of October 2021. HART plans to hold a Peer Review of the project in November 2021. HART will use the information gathered for the Triunity study and the Peer Review to update the EAC and schedule, and as the basis for developing a Recovery Plan that it hopes to have to FTA by mid-2022.*
PMOC Recommendation	HART should update the PMP and associated subplans to support its Recovery Plan. The priority is to complete the PMP update by November 2021, and then focus on adoption of a Recovery Plan in 2022.
Major Issue	
Summary of Issue/Concern	**Operational Readiness 1 (OR1)**: HART must address track issues related to the use of flange bearing frogs and a mismatch in the design of the train wheels and the track. HART instituted speed restrictions on the trains travelling through the flange bearing frogs while the Transportation Technology Center, Inc. (TTCI)[2] study was determining appropriate safe

[2] TTCI, located in Pueblo, Colorado is a wholly owned subsidiary of the Association of American Railroads.

	maximum operating speeds through the frogs. *Delays to address the speed restrictions are delaying the start of Trial Running and ultimately the delivery of the project to DTS to begin operation. The current expected date to turn over the project to DTS, April 23, 2022, will be delayed.*
Date Identified	October 2020
Status	The safe speed study submitted by TTCI on the proposed track remedies for eliminating current speed restrictions across the flange-bearing frogs shows that trains are safe traversing the frogs in a tangent movement at speeds up to 80 mph. *Additionally, the study indicated that the proposed weld fix to address the wheel/rail mismatch issue for trains making a divergent move through the frogs is sufficient with a minor modification to allow trains to operate up to 30 mph, which is sufficient to allow HART to make these movements at normal operating speeds during revenue operations.*
Project Sponsor Action	HART is seeking to procure a welding contractor to make the weld fixes needed on the frogs. Unfortunately, no bids were received through the initial bid advertisement. HART continues to search for a local welder that can become competent on these types of welds to complete the needed track corrections. *Continuing delays in acquiring a qualified welding firm is delaying Trial Running.*
PMOC Recommendation	The PMOC in conjunction with the SSO will continue to monitor HART's efforts to correct the wheel/track mismatch issue through the flange bearing frogs. *The PMOC has requested an update to the OR1 schedule based on the welding procurement schedule delays.*
Major Issue	
Summary of Issue/Concern	**Management Capacity and Capability**: HART completed a re-organization which reduced the size of the HART staff from 112 to 64. Additionally, HART had vacancies in several key management positions.
Date Identified	March 2021
Status	*HART continues recruiting for three key positions: (1) Director of Finance; (2) Chief Safety Officer; and (5) Director of Project Controls. HART hired Trevor Johnson as the Director of Quality. Mr. Johnson is scheduled to begin work with HART November 8, 2021. HART released the Deputy Director for Finance in September, but was able to find a qualified replacement, Mr. Brent Lewis, who started on October 1, 2021.*

Project Sponsor Action	HART made several key hires in August and September. *HART continues searching for a replacement for the Director of Finance, the Chief Safety Officer, and the Director of Project Controls.*
PMOC Recommendation	The PMOC is evaluating the status of the HART staffing adequacy. The Draft Oversight Procedure 03 review is expected to be completed in November 2021. *A draft report will go to FTA mid-November 2021.*
Major Issue	
Summary of Issue/Concern	**West-side Improper Door Operations:** HART trains have experienced several instances of either train doors opening when the train was in motion, not closing when supposed to, or a passenger screen gate not closing when a non-revenue vehicle left the station.
Date Identified	July 2021
Status	The first instance occurred in July 2021. At that time HART grounded the fleet until a root cause could be determined. Hitachi Rail Honolulu (HRH) stated that the cause was procedural and requested to begin operations of the trains for Systems Integration Testing. Shortly after the trains began running again another issue occurred with a door not closing properly. Finally, on September 13, 2021, an incident occurred where the Passenger Screen Gate did not close properly
Project Sponsor Action	*On September 24, 2021, HART grounded the trains until all door issues are adequately resolved. HRH has implemented operational changes to prevent doors from opening inappropriately during testing. Additionally, HRH is developing an automated solution to ensure doors cannot open when trains are in motion. HART approved resumption of train operations on October 23, 2021.*
PMOC Recommendation	The PMOC will monitor this issue monthly to confirm that the system is operating safely. Due to other issues related to resolving track fixes in the flange-bearing frogs, the completion of System Integration Testing (SIT) is not on the OR1 critical path.

1.4 Status of Key Indicators Dashboard

Key Indicators Dashboard					
Project Sponsor:	HART				
Project Name:	Honolulu Rail Transit Project				
Date:	August 2021				
Project Detail					
Oversight Frequency:	Monthly				
Element	Status G	Status Y	Status R	Prior Status (G/Y/R)	Issue or Concern
PMP				Y	HART is updating the PMP and sub-plans
MCC				*Y*	HART filled several key positions in August and September 2021
Cost				R	Project cost estimate exceeds budget and current revenue sources.
Schedule				R	HART schedule does not meet the approved Recovery Schedule.
Quality				*Y*	The new HART Quality Director begins in early November.
Safety				R	*The HART Chief Safety Officer position remains vacant.*
Risk				*G*	HART updated costs to account for realized or highly likely risks.
Legend					
Green	Satisfactory: No Corrective Action necessary				
Yellow	Caution: Risk/Issues exist. Corrective Action may be necessary.				
Red	Elevated for immediate Corrective Action; significant risk to the health of the project.				

1.5 Core Accountability Items

Core Accountability Items ($ in millions)				
		Original (Grant)	Current Forecast	PMOC Assessment of Current Forecast
Cost	Capital Cost estimate	$5,122	$12,074	The revised EAC reflects recent bids that came in substantially higher than earlier estimates.
Contingency	Unallocated Contingency	$102	$222	Total contingency increased by $49 million since June 2021.
	Allocated Contingency	$542	*$1,460*	
	Total Contingency	$644	*$1,682*	
Schedule	Revenue Service Date	January 2020	March 2031	HART reported the March 2031 RSD during 3/31/21 Breakout Meeting.

Project Progress	Amount ($)	Percent of Total

Total Expenditures (as of 8/31/2021)[1]	Actual Cost of all eligible expenditures completed to date	*$4,908*	*43.2%*
Planned Value to date[2]	Estimated value of work planned to date	*$3,691*	*73.8%*
Actual Value to date[2]	Actual Value of work completed to date	*$3,167*	*63.3%*
Contract Status		Amount ($)	Percent
Total Contracts Awarded[3]	Value of all contracts (design, support, construction, equipment) awarded; % of total value to be awarded	*$5,469*	*48.1%*
Construction Contracts Awarded[4]	Value of construction contracts awarded; % of total construction value to be awarded	$2,972	72.7%
Physical Construction Completed[5]	Value of physical construction completed; % of total construction value completed	*$2,409*	*59.0%*
Rolling Stock Vehicle Status	Date Awarded	No. Ordered	No. Delivered
In Progress	January 2012	80	68
Seven four-car consists needed for initial service are on-site and available for Trial Running.			
Next Quarterly Review Meeting Date	TBD		

[1] Actual Cost of all eligible expenditures completed to date; percent calculated by taking Total Expenditures divided by $11.3B
[2]Percent calculated reflects legacy baseline, new baseline to follow at the end of October 2021.
[3]Value of all contracts (design, support, construction, equipment) awarded; percent of total value to be awarded
[4]Value of construction contracts awarded; percent of total construction value to be awarded (reflects legacy baseline
[5]Value of physical construction completed; percent of total construction value completed (reflects legacy baseline

Grant Information

FAIN (HI-03-0047-03)	Federal Funds Obligated	Federal Funds Disbursed	% Disbursed
2008 Section 5309 New Starts	$15,190,000	$15,190,000	100.0%
2009 Section 5309 New Starts	$19,800,000	$19,800,000	100.0%
2010 Section 5309 New Starts	$30,000,000	$30,000,000	100.0%
2011 Section 5309 New Starts	$55,000,000	$55,000,000	100.0%
2012 Section 5309 New Starts	$200,000,000	$200,000,000	100.0%
2013 Section 5309 New Starts	$236,277,358	$236,277,358	100.0%
2014 Section 5309 New Starts	$250,000,000	$249,991,377	99.99%
2015 Section 5309 New Starts*	$250,000,000	$0	0.0%
2016 Section 5309 New Starts*	$250,000,000	$0	0.0%
2017 Section 5309 New Starts*	$243,732,642	$0	0.0%
*Disbursement of remaining federal funds is on hold until HART can demonstrate to FTA that it can complete the remaining FFGA scope.			

2.0 BODY OF REPORT

2.1 Summary of Monitoring Activities

The PMOC and HART conducted a single breakout session on October 27, 2021, for the following items: Welding Contract Procurement; Vehicle Door and PSGS issues; OR 1 Schedule; Triunity Schedule update and initial feedback on the cost review; Peer Review Schedule and Agenda Discussion; and Recovery Plan Schedule/Status. The October 2021 Monthly Progress Meeting was cancelled.

Project Oversight Activities – The following table is a look ahead for important project oversight activities:

Scheduled Future Project Oversight Activities		
Activity	Participants	Date
Draft HART OP 3 Staffing and Organizational Structure Review Report	HART, PMOC	*November 15, 2021*
FTA Quarterly Meeting	FTA, HART, DTS, HDOT, and PMOC	*November 30, 2021*
January 2022 Progress Meeting	*FTA, HART, DTS, HDOT, and PMOC*	*TBD*
OP 54 Part 3	FTA, HART, DTS, HDOT, and PMOC	February 2022 (tentative)

2.2 Oversight Triggers

Key issues that arose during September and October 2021: (1) The Triunity review of the HART schedule stated that the current no-float schedule of September 2029 is appropriate; (2) HART continues to be unsuccessful in finding a qualified welding contractor to correct the flange thickness in the flange-bearing frogs; (3) Hitachi Rail Honolulu Joint Venture (HRH) resumed train operation and SIT.

2.3 Project Management Plan (PMP) and Sub-Plans

The following is the status of all management plans. HART has begun submitting draft plans updates for PMOC review. HART intends to have most subplans and the PMP fully updated in November 2021.

HART Management Plans			
Plan	Rev.	Date Approved	Status
Before-and-After Study Plan	2.0	Aug 2, 2020	Draft submitted
Bus Fleet Management Plan (BFMP)	5.0	Apr 15, 2019	Draft Submitted
Buy America Plan (BAP)	4.0	May 7, 2020	Draft Submitted
Configuration Management Plan (CFMP)	5.0	Jul 21, 2020	Draft Submitted
Construction Management Plan (CMP)	5.0	Jun 16, 2020	*Draft Submitted*

HART Management Plans			
Plan	Rev.	Date Approved	Status
Construction Safety and Security Plan (CSSP)	6.0	Jul 17, 2020	Draft Submitted
Contract Packaging Plan (CPP)	7.0	May 27, 2020	Approved/Baselined
HART Procurement Manual	2.0	Jul 30, 2020	*Draft Submitted*
Interface Management Plan (IMP)	5.0	May 5, 2020	Draft Submitted
Mitigation Monitoring Plan (MMP)	4.0	Jun 29, 2020	Approved/Baselined
Operation and Management Plan (OMP)	2.0	Mar 28, 2019	Approved/Baselined
Preliminary Hazard Analysis (PHA)	4.0	Jul 3, 2019	Draft Submitted
Project Financial Plan (PFP)	1.0	Nov 19, 2018	Approved/Baselined
Project Management Plan (PMP)	8.0	Apr 21, 2020	Approved/Baselined
Public Involvement Plan (PIP)	3.0	Jul 2, 2020	Approved/Baselined
Quality Management Plan (QMP)	5.0	May 19, 2020	*Draft Submitted*
Rail Activation Plan	3.0	May 18, 2020	Draft Submitted
Rail Fleet Management Plan (RFMP)	2.0	Mar 28, 2019	Draft Submitted
Real Estate Acquisition Management Plan (RAMP)	7.0	Jan 23, 2019	Draft Submitted
Risk and Contingency Management Plan (RCMP)	4.0	Jun 9, 2020	Approved/Baselined
Safety and Security Certification Plan (SSCP)	8.0	Mar 6, 2020	Approved/Baselined
Safety and Security Management Plan (SSMP)	9.0	Mar 6, 2020	Approved/Baselined
Sensitive Safety Information Plan	1.0	Dec 13, 2017	Draft Submitted
Staffing and Succession Plan	7.0	Jul 29, 2020	Draft Submitted
System Integration and Test Plan (SITP)	3.0	May 26, 2020	Draft Submitted

2.4 Management Capacity and Capability (MCC)

- HART continues to fill key roles. HART has hired a replacement for the Director of Quality with Mr. Trevor Johnson who will start in early November 2021. HART lost the services of its Chief Safety and Security Officer in September. HART had initially identified a replacement for this position, but the individual did not work out. HART still needs to replace the Project Controls Director, and the Director of Finance and Procurement. The following table shows the status of recruiting to fill key HART positions.

HART Project Management Positions to be Filled	
Position	Status
Director of Project Controls	Interviewing
Director of Finance	Recruiting
Director of Quality Assurance	Trevor Johnson to start November 8, 2021
Chief Safety Officer	Recruiting

2.5 NEPA Process and Environmental Mitigation

Status of Environmental Mitigation Measures

- Environmental Reviews:
  - HART submitted draft environmental reviews to FTA for additional right-of-way in City Center in June 2021. FTA has returned the reviews with comments, and HART has incorporated the comments into the final revised submittal request.
  - HART is continuing to optimize the Kualaka'i Station Park-and-Ride at East Kapolei to define the area of potential effect. HART stated that the Phase 1 Environmental Site Assessment is complete
  - Design changes for the mauka shift in the City Center environmental analysis are underway. Also, a planned noise and vibration study required because of the mauka shift is expected to be completed in October 2021.

2.6 Project Delivery Method and Procurement

- DB 550 –The HART schedule for the CCGS Design-Build shows the contract receiving an NTP for the CCGS Design in January 2024 and the construction NTP to be issued in the January 2025. *There was no change to this schedule in September 2021.*
- DBB 511 – City Center Utilities Relocation – HART divided this work into two contracts (CCUR III and CCUR IV). CCUR III is for Areas 2-6 of the City Center segment of the project, while CCUR IV will cover Area 1 (Dillingham Boulevard). (Refer to map of areas 1 thru 6 in Appendix H.) HART released a revised CCUR III that covers Areas 2-4 as a Design-Bid-Build (DBB) procurement. The Request for Bids was advertised on August 27, 2021. HART anticipates awarding the contract in December 2021. Areas 5 and 6 will be let after HART completes its Recovery Plan. The schedule for areas 2-6 has enough float that the procurement can be delayed until September 2023 if needed. Area 1 (Dillingham Boulevard) is on the critical path. The Design for CCUR IV (Area 1) is expected to be completed by May 2022, and the procurement will follow in late 2022. *The HART schedule shows this contract with an NTP in October 2022.* HART hopes to accelerate this schedule for design and procurement by working closely with the design review partners (City Departments) to expedite the review and permitting process.

2.7 Design

FD 530 – City Center Utilities Relocation Design – Design is for utility relocation and road widening to facilitate future guideway design and construction by others. The design work for Areas 2 through 6 was completed in June 2021. The main re-design is primarily for Areas 1a, 1b, and 1c (Dillingham Boulevard section) of the City Center portion of the project (see maps showing Areas 1 through 6 in Appendix H). HART reported the following schedule for completion of Design for CCUR IV:

- Pre-Final Design Submittal……November 9, 2021
- Final Design Submittal ……. February 21, 2022
- Issue for Construction (IFC) ……. May 6, 2022
- Obtain Design Approval Signatures ……. September 14, 2022

2.8 Value Engineering and Constructability Reviews

HART is holding an industry Peer Review in early November 2021 in conjunction its development of a Recovery Plan. One of the goals of the Peer Review would be to realize "Value Engineering" opportunities.

2.9 Real Estate Acquisition and Relocation

- HART confirmed in March 2021 that it will pursue a utilities-avoidance alignment that shifts the alignment along Dillingham Boulevard to the mauka side. Based on this choice, the Real Estate group is developing a list of parcels that will be needed for the revised alignment. HART had initially identified a tentative list of 66 additional properties needed to accommodate the mauka shift; however, with the choice to not shift the Honolulu Community College (HCC) Station to a site further east only two primary property owners remain impacted by the relocated station and guideway. Most of the property is located on HCC property and will be accessed at no cost. The remaining property is on Kamehameha Schools property. HART has engaged in discussions with Kamehameha Schools, who proposed providing early access through an MOU. HART does not believe that these properties will affect the critical path. In addition to the properties needed for the station and guideway, additional property may be needed for utility purposes. This is currently in design. The design team is making every effort to contain all utility needs within property already owned by HART or currently in negotiations.
- *HART has identified a total of 288 parcels that are needed for the project. Of those properties, HART has access to all but 74 parcels. Thirty-four of the parcels are located in the second segment where HART agreed to relocate overhead HECO power lines. These properties are not needed for the start of service. Most of the remaining parcels (32) are in the City Center and are not expected to affect the critical path of the project schedule.*

2.10 Third Party Agreements and Utilities

Appendix J includes a table with the status of all pending third-party agreements.

Status of Utilities:

- HECO requested a Supplemental Agreement (SA) for the construction of the Ka'a'ahi Substation near the MSF to ensure that the power used by HART justifies the cost of the substation. This is a three-way agreement that includes DTS because the cost ramifications of the agreement would not be realized until operations begin. HECO updated the load data for the MSF in June 2021 and was to provide updated data for the Pearl Highlands Parking Garage at the end of June 2021. This information was needed to determine the substation's required service date. The substation is not needed to begin operations for IO1. The current expectation is that the substation must be in place prior to the opening of phase 2 to the Middle Street Station. HART is using December 2023 as the target date to be completed. HECO is revising the draft MOU. *No update was provided on this issue in October 2021.*

- HART has agreed to move forward with STATCOMS[3] to mitigate potential power supply issues along the alignment for HECO. HART and HECO are working on the sizing study for the STATCOMS. HART will install seven STATCOMs on segment one by beginning of 2025. Initially, HART will install one STATCOM at the location of HECO's choosing to evaluate effectiveness.

2.11 Construction - Status of Primary Construction Contracts:

SECTION I – West O'ahu Farrington Highway Contracts – East Kapolei to Pearl Highlands

- **DBB-171** – West O´ahu Station Group Construction Contract – Nan, Inc. contractor
  - HART expects to reach administrative closeout by the end of October 2021. The core systems contractor, HRH, has full control of these stations.
- **DBB-271** – Farrington Highway Station Group Construction Contract – Hawaiian Dredging Construction Company (HDCC) contractor.
  - The contract reached substantial completion September 30, 2020. All punch list items have been completed.
  - Control of this section has been turned over to the Core Systems Contractor.
  - Administrative closeout of this contract is expected by the end of October 2021.

SECTION II – Kamehameha Highway Contracts – Pearl Highlands to Aloha Stadium

- **DBB-371** – Kamehameha Highway Station Group Construction Contract – Nan, Inc., contractor.
  - *Physical completion remains at 99.9%*.
  - An NCR was issued for this contract due to discovered water ponding and intrusion issues.
  - A final walkthrough in June 2021 revealed approximately 600 items to be reviewed for addition to the punch list. *The list has been reduced from 371 reported last month to 232 as of September 30, 2021*.
  - Projected completion of work and turnover to the core systems contractor is expected by the end of November 2021. This is one month later than reported last month.
- **DBB-701** – Kamehameha Highway Resurfacing (KHR), Road & Highway Builders, LLC (RHB), contractor.
  - Physical percent complete remained 98.5%. The project is seven months behind.
  - HART reported at the February Meetings that the Kuala left turn work will not be completed prior to the Interim Opening 1 schedule; however, HART will add temporary treatments that provide safe access for rail users that intend to use the station. *The HART schedule shows all work for the temporary improvements will be completed by the end of January 2022.*

SECTION III – Airport Guideway and Stations (AGS) – Aloha Stadium to Middle Street Transit Center Station

[3] A static synchronous compensator (STATCOM) is a regulating device used on alternating current electricity transmission networks. It is usually installed to provide voltage stability.

- **DB-450** – Airport Guideway and Stations (AGS) (5.2 miles / 4 stations) – Contractor is Schimmick/Traylor/Granite, JV (STG).
  - Stations:
    - Makalapa Station at Pearl Harbor Navy Base
    - Lelepaua Station at Daniel K. Inouye International Airport
    - Āhua Station at Lagoon Drive
    - Kahauiki Station at Middle Street Transit Center
  - *Physical percent complete improved to 90.4%. (89.1% last month) The percent complete is ahead of the late Plan completion of 89.3%.* Contract substantial completion date is December 2021; the projected completion date is September 2022, which is nine months behind contractual schedule. STG and Hitachi Rail Honolulu (HRH) have coordinated and agreed on the schedule for core systems access to the guideway and stations to begin HRH's work.
  - AGS **guideway construction** continues to progress and stands at 93% complete. *The following table shows the status as of September 30, 2021.*

Guideway Structure Element	Progress for Reporting Period	Total as of *9/30/2021*	Total Quantity Required	% Complete
Shafts	*1*	*224*	225	*99.6%*
Columns	*1*	*222*	232	*95.7%*
Segment Casting	0	2708	2708	100%
Spans Stressed	2	*195*	210	*92.9%*
Spans Grouted	1	*194*	210	*92.4%*
*Track 1 rail work (plinths)	5 spans	136	210	64.8%
*Track 2 rail work (plinths)	5spans	136	210	64.8%
Track 1 third rail	22	44	210	21.0%
Track 2 third rail	22	44	210	21.0%
Mill and overlay (SY)	0	5440	58,330	9.3%
*Track 1 is east bound. Track 2 is west bound.				

- *Makalapa Station at Pearl Harbor improved from 63% complete as of August 31, 2021, to 67.8% complete as of September 30, 2021. Design is complete. Activities in September 2021 included completion of painting structural steel of entry building, mauka elevator, and TCCR; continuing work with ramps, curbs, landings, and stairs #4 & #6 on the*

Diamondhead side (eastside) of the station from concourse to platform; and started the electrical rough-in of the ancillary building and Pan Deck.

- *Lelepaua Station at Daniel K. Inouye Airport progressed from 67% complete as of August 31, 2021, to 69.0% complete on September 30, 2021. Continued constructing HECO infrastructure on Aolele Street to provide power for the station. STG began structural steel erection for concourse level at the mauka entry for elevators #1 & #3.*
- *Āhua Station at Lagoon Drive had advanced from 55% complete as of August 31, 2021, to 56.1% as of September 30, 2021. Activities included: finishing the painting of structural steel for the mauka entrance and elevator hoistway; completing coping cap at TCCR parapet and completing concrete masonry unit wall for makai entry.*
- *Kahauiki Station at Middle Street Transit Center progressed from 58% complete as of August 31, 2021, to 61.5% complete as of September 30, 2021. The contractor completed the concrete pour for non-structural slabs for electrical and trash rooms, placed Doka forms on the remaining half of the station platform girders, and commenced with forming architectural topping slab for entry buildings.*

SECTION IV – City Center: Middle Street Transit Center to Ala Moana Center

- **DBB-511** – City Center Utilities Relocation (CCUR) – Nan, Inc. contractor. (Refer to map in Appendix H)
  - HART began re-designs for the Dillingham Section (Areas 1a, 1b, and 1c) to meet utility clearance requirements. *The designs are expected to be completed by May 2022, a one-month improvement from last month's report.* HART will re-procure with a Design-Bid-Build delivery. This work is on the critical path for full project completion. This contract is anticipated to be awarded in late-2022.
  - HART completed designs in June 2021 for Areas 2-6 and received all necessary construction permits. HART advertised for a fixed price contract to complete all utility relocation in Areas 2 through 4 in August 2021. HART anticipates awarding this contract in December 2021. Areas 5 and 6 are ready to be procured, but HART will wait to advertise this section until a decision is made on the scope of the Recovery Plan. HART has significant float on areas 2-6.

SYSTEM-WIDE: – Including Core Systems

- **MI-900** – Fare Collection System Contract – Innovations in Transportation, Inc. (INIT) is the contractor.
  - Contract remained at 77.1%. *The late Plan completion is 98.5%.* The work is 12 months behind planned Milestone Schedule. Although the contract is behind schedule for payment purposes, this delay does not affect the Operational Readiness #1 (OR1).
  - Key Milestones:
    - No. 1 - Completed 100% Field Integration Testing (FIT) as of April 15, 2021.
    - No. 2 - Completed all SCADA and FDAS testing as of February 28, 2021.
    - No. 3 - Systems Acceptance Testing 70% complete as of March 15, 2021 (no change; remaining work to be completed during Trial Running).

- No. 4 - Completed cleaning and wrapping of rail fare gates at East Kapolei, Pearl Highlands, and Aloha Stadium stations in May 2021.

- **MI-930** – Elevators and Escalators Manufacture-Install-Maintain (MIM) Contract – Schindler Elevator Corporation is the contractor.
  - *This contract progressed marginally to 50.6% complete in the September 2021 Progress report. Note, that the percent complete is for the entire contract which is systemwide and not for any particular segment.*
  - All elevators and escalators are installed and operating on the initial segment (IO1).
  - Work continues on the Airport Stations and Guideway contract.
- **DBOM-920** – Core Systems – Hitachi Rail Honolulu Joint Venture (HRHJV) is the contractor.
  - *Contract improved from 82.1% as of August 31, 2021, to 82.3% as of September 30, 2021. Late Plan completion is 74.1%.*
  - *The schedule for Trial Running continues to show this activity occurring in January 2022.* This schedule is contingent on HART finding a qualified welding contractor to fix the wheel-rail mismatch for the flange-bearing frogs. The TTCI study shows that the trains should be able to safely traverse the flange-bearing frogs in the divergent move at normal operating speed (up to 30 mph) once the weld solution proposed by HART (with a minor design modification) is completed. *Current delays in finding a welding contractor are causing day-for-day delays to the Trial Running schedule.*
- The Main Risks for Core Systems' readiness for OR1:
  - Completion of Systems Integration Testing (SIT): HRH continues to make slow progress on the key indicators for completing system testing and commissioning. HART is reporting that SIT is approximately 92.11% complete; however, speed restrictions due to the track issues described previously in this report prevent all SIT from being completed. HART identified seven tests that need to take place once the speed restrictions are lifted; however, HART noted that three of those tests can now be completed prior to Trial Running and have begun. The tests are the Variable Message Testing, the 30-day communication system testing, and the 1000-hour communications testing. The other four tests can take place during Trial Running.
  - Vehicle Door Malfunctions: On July 16, 2021, a door on Train #13 did not fully close when the train departed the station and travelled with a partially opened door from the LCC Station to the ALS Station. HRH determined the cause for the open door was procedural. HART is pushing HRH to resolve the issue through a design solution that removes the possibility of human error. Also, the trains are experiencing intermittent door openings without ATC commands while the train is at the station. The effect of this is that the trains cannot depart the station. Finally, on August 4, 2021 a platform door remained open after a train left the station at the East Kapolei Station. It appears that all the door issues are occurring in the manual mode. HART grounded the fleet after the first incident in July, and then allowed HRH to continue operations at the beginning of August. HART then grounded the fleet again after the door incident on August 4, 2021. HART again released the trains to continue operation. *HART experienced a third incident on September 14, 2021 when a Platform door remained open after an MPV operated through the station.* HRH is investigating the issue. HART grounded the trains until solutions are identified to address these incidents. *HRH*

has implemented procedural changes to prevent doors from opening through SIT but continues to work on ATC design changes to prevent train doors and platform screen gates from opening inappropriately in either automatic or manual modes. HART allowed trains to operate again starting on October 23, 2021.

- Train wheel-rail incompatibility at crossovers: HART brought in track consultant TTCI to evaluate appropriate running speeds on the through movements on Flange-Bearing Frogs and to evaluate the flange weld design solution for the divergent moves. Results of the study show that HART will be able to operate trains at full speed for both scenarios, tangent, and divergent moves, through the frogs. *Until the weld solution can be implemented on the frogs, HART will maintain speed restrictions for cross-over maneuvers. Trains can resume full speed operations through the frogs in a through movement.*
- *The following occurred in September 2021:*
  - *HRH restarted system burn in with Operational Readiness Fleet (Trains #8-#14) during the period of September 13-24. Fleet grounded on September 24, 2021, and then allowed to restart burn-in activities on October 23, 2021.*
  - *HRH completed all test reports for the Fire Detection and Alarm System (FDAS).*
  - *HRH Continues to address Traction Electrification System (TES) issues, such as the MSF Touch Potential issues.*
  - *HRH completed Communication System Integration Testing: 30-day SLAN tests at all Operational Readiness #1 stations.*
  - *HRH started the 1,000 hours Passenger Information System (PIS) testing at all Operational Readiness #1 stations.*

2.12 Vehicle Technology and Procurement

- Light Rail Vehicles (LRVs) – Status of the seven trains required for Interim Opening:
  - Train #8: Ready for integration testing.
  - Train #9: Ready for integration testing.
  - Train #10: Ready for integration testing.
  - Train #11: Ready for integration testing.
  - Train #12: Ready for integration testing.
  - Train #13: Ready for integration testing.
  - Train #14: Ready for integration testing.

2.13 Project Cost

Cost Summary

Project Cost Summary ($ in millions) *			
Budget Category	2018 Recovery Plan Budget	HART's Estimate at Completion Budget	Difference
Base Cost without Contingency	$7,312	*9,689*	*($2,377)*
Total Contingency	987	*1,682*	*(695)*

Project Cost Summary ($ in millions) *			
Budget Category	2018 Recovery Plan Budget	HART's Estimate at Completion Budget	Difference
Total Project Capital Cost	8,299	11,371	(3,072)
FFGA Finance Charges	609	703	(94)
Subtotal Project Cost	8,908	12,074	(3,166)
Post-RSD Finance Charges	231	376	(145)
Total Project Cost	**$9,139**	**$12,450**	**($3,311)**
**Data based on costs incurred as of September 30, 2021*			

- *HART reported spending of $27 million in September 2021. HART reports a total expenditure, as of September 30, 2021, of $4.908 billion.*
- The table in Appendix K of this report provides a comparison of the 2018 Recovery Plan Budget to HART's Estimate at Completion. *The comparison uses Standard Cost Category (SCC) as well as expended amounts for the 2018 Recovery Plan Budget (June 2019 Update) and HART's Estimate at Completion as reported in the September 2021 HART Monthly Report. (Data as of September 30, 2021).*
- *Contingency: HART's revised EAC contains a total of $1.682 billion ($1.460 billion allocated and $222 million unallocated).*
- Funding Sources: The following table shows funding sources at time of FFGA, and in the June 2019 Recovery Plan. The projected revenue for the HART project is insufficient to cover the EAC presented by HART. Additionally, HART stated that revised revenue projections show a reduction of $376 million. The reduction in the projected revenue in combination with the increased EAC yields an expected total shortfall of $3.577 billion.

Sources of Funding Over Time			
Source	2012 FFGA	June 2019 Recovery Plan	March 2021 Financial model update
Beginning Cash Balance	$0	$298	298
Interest Income on Cash Balance	7	1	
General Excise Tax (GET)	3,358	5,990	5,886
Section 5309	1,550	1,550	1550
Section 5307	210	0	
All Other (ARRA $4 million, the rest from interest income and rent)	4	5	13
Transient Accommodation Tax (TAT)	0	1,182	911
City Subsidy - HART Administration	0	214	214

Sources of Funding Over Time			
Source	2012 FFGA	June 2019 Recovery Plan	March 2021 Financial model update
Additional Funds FY2018-FY2030	0	0	
Total	$5,129	$9,240	$8,872

2.14 Project Schedule

The table below presents HART's target dates for key project milestones as identified in its revised Master Project Schedule (MPS) as shown in the August 2021 Progress Report.

Milestone Description	Finish Date
Revenue Service Date in the FTA Awarded Full Funding Grant Agreement	January 31, 2020
Operational Readiness (deliver system to DTS for operating) (Kualaka'I Station at East Kapolei Station to Hālawa Station at Aloha Stadium)	April 23, 2022
Full Project Revenue Service Date – Recovery Schedule	September 1, 2026
Full Project Revenue Service Date –HART Schedule	March 31, 2031

Operational Readiness 1 Schedule: The Honolulu Department of Transportation Services (DTS) is responsible for operating the HRTP when HART gets the system to Operational Readiness. *HART indicated that the schedule for the start of Trial Running is tentatively set for January 10, 2022 (the Trial Running Schedule is dependent on the weld procurement to address the rail/wheel size mismatch in the Flange-Bearing Frogs).*

2.15 Project Risk

HART has developed a robust risk management program with support from its Program Management Consultant. *HART reported the findings of the September monthly update in the September 2021 Progress Report. The latest P65 cost is $10.522 billion (not including financing costs), which is no change from the August 2021 update. The updated P65 schedule remained February 2031, which represents just under 16 months of contingency*. The top cost risk remains cost associated with delay to core systems related to City Center Guideway and Stations delays. The top schedule risk remains potential delays for misidentified and/or unidentified utilities in the City Center. HART does identify an opportunity that exceeds the Core Systems potential cost risk in potential cost savings.

2.16 Quality Assurance/Quality Control

- *HART reported in the September 2021 Monthly Progress Report that work to repair vehicle surface defects on Car 10 could not be completed, because the decal material was damaged.* The new decal is now on the island. Installation of the decal will take place once the door adjustment on the vehicle has been completed.

2.17 Safety and Security

- *The HART total incident rate for the past 12 months is 1.48 which is slightly higher than last month's reported rate (1.41) but lower than the national rate of 2.80.*[4]
- *The status of Safety Certification, as of September 30, 2021:*
  - *OR1 Segment remained 97% complete*
  - OR2 Segment remained at 60%
  - City Center Segment is 0% complete
  - MSF is 100% complete
- Safety Activity
  - The PMOC continues to coordinate with HDOT and HART to review documents supporting the effort to move the project to the initial revenue service.
  - Station certification for the potential 2021 Interim Opening 1 is 100%.
- OP 54 Readiness for Revenue Service2021.
  - The PMOC held the OP 54 Part 2 interviews with HART and DTS during the last week of July 2021 and submitted the Part 2 report to FTA on August 31, 2021. The Final Draft was submitted to FTA September 15, 2021.
  - HRH has made sufficient progress on system testing. HART announced that the schedule to effectively complete SIT is September 2021, with the exception for tests that cannot be completed until the speed restrictions through the double crossovers are removed. *HART grounded the fleet while door operation issues were being resolved. This restriction was lifted on October 23, 2021. HRH has about a month of float for SIT before Trial Running begins in January 2022; however, the schedule for Trial Running is now governed by the work required to make weld repairs in the flange-bearing frogs. All float has been exhausted for this weld-repair activity.*
  - OP 54 Part 3 will take place in early 2022 if the current schedule holds. The goal of Part 3 is to review training activities, emergency drills, completed manuals, rules and procedures.

2.18 Americans with Disabilities Act (ADA)

HART stated that all designs to are required and do meet ADA standards.

2.19 Buy America

- HART revised its plan to complete a Post-Delivery Buy America audit on the Operational Readiness #1 Fleet and will complete the full audit on the entire fleet. HART is amending the contract with Raul V. Bravo + Associates to conduct the Buy-America Post-Delivery Audit Close-out. HRH indicated that it would not have all documentation ready to complete the Post-Delivery Close-out Audit until the November 2021 timeframe.
- HRH continues to execute the corrective action on trains #1 and #2. HRH is identifying and segregating the "foreign" interior components.

[4] *OSHA Incident Rate is calculated using the following formula: Total number of Injuries & Illnesses X 200,000 divided by the number of hours worked by all employees for a given period.*

- Ship America – The U.S. Maritime Administration (MARAD) has confirmed via an email to HART that HRHJV has executed a contract with a US flag carrier. HART must continue to monitor HRHJV to ensure all Ship America requirements are satisfied throughout the duration of the contract.

2.20 Start-Up, Commissioning, Testing

- The PMOC report on DTS Management Capacity and Capability found that DTS has made good progress toward implementing its staffing plan. DTS reported at the April 1, 2021 Operational Readiness breakout session that it has hired 79% of the staff it needs for commencement of service.
- The Interim Opening Task Force meets weekly and is making progress toward required milestones. The PMOC is coordinating with the SSO to ensure that all pre-revenue service reviews are completed, including OP-54 items. The PMOC is working with HDOT and HART to ensure that all the required certifications and OP-54 reviews can be accomplished commensurate with the HART schedule. The OP-54 Part One workshop was held the week of February 10, 2020. The Part 2 workshop was held July 26-29, 2021. Part 3 will be after SIT is completed and Trial Running has begun. *Trial running is scheduled to begin in January 2022.*
- *HART reported that the Key Indicators for Operational Readiness 1 handover to DTS are making steady progress. The overall testing and commissioning progress is at 92.8% complete. The last 5% cannot be completed until Trial Running starts. HART reported that testing and commissioning for Traction Electrification System (TES), Uninterrupted Power System, Fire Detection and Alarm System (FDAS), and Passenger Screen Gates System (PSGS) have been completed. ATC & SCADA, Communications, Passenger Vehicles, and Integration Testing are all nearing completion (greater than 97% complete).*
- Staffing and training needs are also being addressed:
  - Mass recruitment is essentially complete; HART reported at the May 27, 2021 Interim Opening Breakout Session that that no additional hires were made and that 156 of the 168 persons needed for IO1 have been hired.
  - HRH training is nearing completion with the Individual Role Training Plan at 98% complete, Rulebook is at 93%, Infrastructure Access is at 96%, track access is 91% and Roadway Worker Protection is at 93% complete. Some of the completion percentages have gone down from last month's reported percent complete due to HRH losing some previously trained staff.

2.21 Before-and-After Study Reporting

DTS is advancing plans for an on-board survey in Fall 2021. HART has provided comments on the revised draft Milestone III report and the GEC is preparing the revised Interim Milestone report based on the comments received. The latest revision from HART's consultants was due in early October 2021.

2.22 Lessons Learned

HART learned from recent procurements that it should prepare for the need for alternative bid document transmission. Several of the files were too big for prospective bidders to download.

2.23 Action Items

Item No.	Item	Responsible Party	Date Due	Date Completed	Status
6-10-20-06	HART to update RAMP.	HART	July 30, 2021		HART *Submitted an updated draft in October 2021.*
10-14-21-07	HART to provide revised Financial / Recovery Plan to FTA.	HART	*Mid -2022*		HART committed to completing a Recovery Plan, which it plans to submit by mid-2022.
07-28-21-05	HART to update PMP	HART	November 2021		HART updating subplans and PMP to be completed by November 2021.

3.0 APPENDICES

Appendix A: List of Acronyms and Initialisms

AGS	Airport Guideway and Stations
AHJV	Ansaldo Honolulu Joint Venture (now HRHJV)
AIS	Archeological Inventory Survey
APE	Area of Potential Effect
ARRA	American Recovery and Reinvestment Act
ATC	Alternative Technical Concepts
ATC	Automatic Train Control
AW1	Rail Transit Vehicle Weight Loading = "Crew and fully seated passenger load + empty vehicle weight"
AW2	Rail Transit Vehicle Weight Loading = "Standing passenger load at 4 passengers per meter^2 + AW1"
BAFO	Best and Final Offer
BCE	Base Cost Estimate
BFMP	Bus Fleet Management Plan
CCGS	City Center Guideway and Stations
CCUR	City Center Utility Relocation
CE&I	Construction Engineering and Inspection
CMP	Construction Management Plan
COMMS	Communications
COO	Chief Operating Officer
CPP	Contract Packaging Plan
CROE	Construction Right of Entry
CSC	Core Systems Contract
CSL	Cross-hole Sonic Logging
CSP	Contractor Safety Program
CSSP	Company-wide Safety & Security Program Plan
DAGS	Department of Accounting & General Services
DB	Design-Build
DBB	Design-Bid-Build
DBOM	Design-Build-Operate-Maintain
DCCA	Department of Commerce and Consumer Affairs
DHHL	Department of Hawaiian Homelands
DLNR	Department of Land and Natural Resources
DOL	Department of Labor
DTS	Department of Transportation Services
EAC	Estimate at Completion
ED	Eminent Domain
EIS	Environmental Impact Statement
EOS	Electrically Operated Switch
FAIN	Federal Award Identification Number
FD	Final Design

FDAS	Fire Detection Alarm System
FEIS	▪ Final Environmental Impact Statement
FFGA	▪ Full Funding Grant Agreement
FHSG	▪ Farrington Highway Station Group
FPO	▪ Federal Preservation Officer
FTA	▪ Federal Transit Administration
FY	▪ Fiscal Year
GEC	▪ General Engineering Consultant
GET	▪ General Excise Tax
GSA	▪ General Services Administration
HART	▪ Honolulu Authority for Rapid Transportation
HCC	▪ Honolulu Community College
HDCC	▪ Hawaiian Dredging Construction Company
HDOT	▪ Hawaii Department of Transportation
HECO	▪ Hawaiian Electric Company
HOP	▪ Ho'opili Station
HRH	▪ Hitachi Rail Honolulu
HRHJV	▪ Hitachi Rail Honolulu Joint Venture (formerly AHJV)
HSQE	▪ Health, Safety Quality and Environment
ICCS	▪ Integrated Communications Control System
ICE	▪ Independent Cost Estimate
IFB	▪ Invitation to Bid
INMS	▪ Integrated Network Management System
IO1	▪ Interim Operating Segment #1
ITS	▪ Intelligent Transportation Systems
JV	▪ Joint Venture
JU&O	▪ Joint Use and Occupancy Agreement
KHG	▪ Kamehameha Highway Guideway
KHSG	▪ Kamehameha Highway Stations Group
KIWC	▪ Kiewit Infrastructure West Company
KKJV	▪ Kiewit Kobayashi Joint Venture
LCC	▪ Leeward Community College
LRV	▪ Light Rail Vehicle
MARAD	▪ U.S. Maritime Administration
MCC	▪ Management Capacity and Capability
MDS	▪ Mobile Data System
MMIS	Maintenance Management Information System
MMP	▪ Mitigation Monitoring Program
MOU	▪ Memorandum of Understanding
MOW	▪ Maintenance of Way
MPR	▪ Monthly Progress Report (prepared by HART)
MPS	▪ Master Project Schedule
MSF	▪ Maintenance and Storage Facility
NCR	▪ Non-Compliance Report
NEPA	▪ National Environmental Policy Act

NTP	Notice to Proceed
O&M	Operations & Maintenance
OCIP	Owner Controlled Insurance Program
OP	Oversight Procedure
OR1	Operational Readiness #1
P3	Public Private Partnership
PHPS	Pearl Highlands Parking Structure
PID	Parcel Identification Number
PMC	Project Management Consultant (Same as PMSC)
PMOC	Project Management Oversight Contractor
PMP	Project Management Plan
PMSC	Project Management Support Consultant (Same as PMC)
PSG	Platform Screen Gate
PSGS	Platform Screen Gates System
PTASP	Public Transportation Agency Safety Plan
QA/QC	Quality Assurance/Quality Control
QAM	Quality Assurance Manager
QMP	Quality Management Plan
RAMP	Real Estate Acquisition and Management Plan
RCMP	Risk and Contingency Management Plan
RFB	Request for Bids
RFMP	Rail Fleet Management Plan
RFP	Request for Proposals
RFQ	Request for Qualifications
ROC	Rail Operations Center
ROD	Record of Decision
ROE	Right of Entry
ROW	Right of Way
RSD	Revenue Service Date
RWP	Roadway Workers Protection
SAT	Systems Acceptance Testing
SCADA	Supervisory Control and Data Acquisition
SCC	Standard Cost Category
SHPD	State Historic Preservation Division
SIT	System Integration Testing
SOA	State Oversight Agency
SSCP	Safety and Security Certification Plan
SSMP	Safety and Security Management Plan
SSO	Safety & Security Officer
SSPP	System Safety Program Plan
SSRC	System Safety Review Committee
SSSPS	System Safety and Security Program Standards
STATCOM	Static Synchronous Compensator
STCC	Specification Testing Conformance Checklist
STG	Schimmick/Traylor/Granite (A joint venture contractor)

TAT	▪	Transient Accommodation Tax
TBD	▪	To be Determined
TCCR	▪	Train Control Communication Room
TES	▪	Traction Electrification System
TBD	▪	To be Determined
TTCI	▪	Transportation Technology Center, Inc.
UH	▪	University of Hawaii
UPS	▪	Uninterrupted Power Supply
USN	▪	United States Navy
USPS	▪	United States Postal Service
WOFH	▪	West Oahu/Farrington Highway
WOSG	▪	West Oahu Stations Group
YOE	▪	Year of Expenditure

Appendix B: Safety and Security Checklist (Updated March 2021)

Project Overview			
Project Name	Honolulu Rail Transit Project		
Project mode (Rail, Bus, BRT, Multimode)	Rail		
Project phase (Preliminary Engineering, Final Design, Construction, or Start-up)	Construction		
Project Delivery Method (Design/Build, Design/Build/Operate Maintain, CMGC, etc.)	DB, DBB, DBOM, and DBOFM		
Project Plans	**Version**	**Review by FTA**	**Status**
Safety and Security Management Plan	9	Y	Complete
Safety and Security Certification Plan	8	Y	Complete
Public transportation Agency Safety Plan (PTASP) Part 673 now requires PTASP (instead of SSPP)		N/A	HDOT provided conditional approval on 10/5/2020
System Security Plan or Security and Emergency Preparedness Plan (SSEPP)		N/A	Complete
Construction Safety and Security Plan	4	Y	Complete
Safety and Security Authority	**Y/N**		**Status**
Is the grantee subject to 49 CFR Part 659/674 state safety oversight requirements?	Y		
Has the state designated an oversight agency as per Part 659.9/674	Y		Executive Order 10-04 effective April 6, 2010
Has the oversight agency reviewed and approved the grantee's SSPP as per Part 659.17/674?	N/A		HDOT provided conditional approval on 10/5/2020
Has the oversight agency reviewed and approved the grantee's Security Plan or SEPP as per Part 659.21?	Y		
Did the oversight agency participate in the last Quarterly Program Review Meeting?	Y		Also Participates in Monthly Meetings
Has the grantee submitted its safety certification plan to the oversight agency?	Y		
Has the grantee implemented security directives issued by the Department Homeland Security, Transportation Security Administration?	N		None issued to date
SSMP Monitoring			
Is the SSMP project-specific, clearly demonstrating the scope of safety and security activities for this project?	Y		
Grantee reviews the SSMP and related project plans to determine if updates are necessary?	Y		

Does the grantee implement a process through which the Designated Function (DF) for Safety and DF for Security are integrated into the overall project management team? Please specify.	Y	
Does the grantee maintain a regularly scheduled report on the status of safety and security activities?	Y	Reported Monthly
Has the grantee established staffing requirements, procedures and authority for safety and security activities throughout all project phases?	Y	
Does the grantee update the safety and security responsibility matrix/organization chart as necessary?	Y	
Has the grantee allocated sufficient resources to oversee or carry out safety and security activities?	Y	DTS Security Resources a concern
Has the grantee developed hazard and vulnerability analysis techniques, including specific types of analysis to be performed during different project phases?	Y	
Does the grantee implement regularly scheduled meetings to track to resolution any identified hazards and/or vulnerabilities?	Y	
Does the grantee monitor the progress of safety and security activities throughout all project phases? Please describe briefly.	Y	
Does the grantee ensure the conduct of preliminary hazard and vulnerability analyses? Please specify analyses conducted.	Y	
Has the grantee ensured the development of safety design criteria?	Y	
Has the grantee ensured the development of security design criteria?	Y	
Has the grantee verified conformance with the safety and security requirements in the design?	Y	Ongoing
Has the grantee identified conformance with safety and security requirements in equipment and materials procurement?	Y	Ongoing
Has the grantee verified construction specification conformance?	Y	Ongoing
Has the grantee identified safety and security critical tests to be performed prior to passenger operations?	N	Scheduled for Trial Running (1/2022)

Has the grantee verified conformance with safety and security requirements during testing, inspection and start up phases?	N	Scheduled for Trial Running (1/2022)
Does the grantee evaluate change orders, design waivers, or test variances for potential hazards and/or vulnerabilities?	Y	Ongoing
Has the grantee ensured the performance of safety and security analyses for proposed work-a-rounds?	N	Scheduled for Trial Running (1/2022)
Has the grantee demonstrated through meetings or other methods, the integration of safety and security in the following? • Activation Plan and Procedures • Integrated Test Plan and Procedures • Operations and Maintenance Plan • Emergency Operations Plan	N	Scheduled for Trial Running (1/2022)
Has the grantee issued final safety and security certification?	N	Scheduled after Trial Running (3/2022)
Has the grantee issued the final safety and security verification report?	N	Scheduled after Trial Running (3/2022)
Construction Safety		
Does the grantee have a documented/implementation Contractor Safety Program with which it expects contractors to comply?	Y	CSP development is included in construction contracts
Does the grantee's contractor(s) have a documented company-wide safety and security program plan?	Y	Is a requirement of CSSP
Does the grantee's contractor(s) have a site-specific safety and security program plan?	Y	Is a requirement of CSSP
Provide the grantee's OSHA statistics compared to the national average for the same type of work?	Y	Reported Monthly
If the comparison is not favorable, what actions are being taken by the grantee to improve its safety record?	Y	Ongoing
Does the grantee conduct site audits of the contractor's performance versus required safety/security procedures?	Y	Audit required in CSSP
Federal Railroad Administration		
If the shared track: has the grantee submitted its waiver request application to FRA? (Please identify any specific regulations for which waivers are being requested)	NA	

If the shared corridor: has grantee specified specific measures to address shared corridor safety concerns?	NA	
Is the Collision Hazard Analysis underway?	NA	
Other FRA required Hazard Analysis – fencing, etc.?	NA	
Does the project have Quiet Zones?	NA	
Does FRA attend Quarterly Review Meetings?	NA	

Appendix C: Top Five Project Risks

Risk No.	Risk Category		Risk Description	Status
	Cost	Sched.		
1	x		Misidentified and unidentified Utilities	CCUR III (Areas 2-6) is scheduled to be advertised in August 2021. CCUR IV (Area 1) is scheduled to be procured in mid-2022.
2	x	x	Core Systems: Schedule and cost impacts due to CCGS guideway and stations delays.	Re-procurement may cause additional delays to Core Systems due to delays in delivering Guideway and stations.
3	x	x	CCUR: Delay in Access to Properties	Continued risk of field conditions revealing additional work as HECO utilities are relocated.
4	x		CCGS Market conditions – reduced number of bidders.	HART will advertise for a Design-Build contract in the 3rd quarter of 2022.
5		x	AGS: HECO Zone 8B Construction delay	Potential for delays based on HECO's schedule and design requirements.

Appendix D: Awarded Contract Status

CPP	Description	Contractor	Original Contract Value	CCO	Current Contract Value	Expended	% Exp.	Award Date	Original Completion Date	Revised Completion Date	Notes
DB120	**WOFH DB**	**KIWC**	482,430,201	185,351,685	667,781,886	667,781,886	100%	11/11/09	10/21/13	12/2018	**Closeout ongoing**
DB200	**MSF DB**	**Kiewit/Kobayashi JV**	195,258,000	86,517,032	281,775,032	281,775,032	100%	06/30/11	12/20/14	07/02/16	**Closeout ongoing**
DB320	**KHG DB**	**KIWC**	372,150,000	31,405,774	403,555,774	403,555,774	100%	06/30/11	10/15/14	12/2018	**Closeout ongoing**
DB450	**AGS DB**	**STG JV**	874,750,000	11,559,800	886,309,800	*795,513,873*	*90%*	09/20/16	05/01/21	12-2021	
DBB171	**WOSG**	**Nan, Inc.**	56,088,470	29,429,212	85,517,682	*$85,338,814*	100%	07/20/15	03/12/18	3-2019	
DBB271	**FHSG**	**Hawaiian Dredging**	78,999,000	37,513,971	116,512,971	116,199,078	100%	06/22/15	01/16/18	1/16/19	
DBB371	**KHSG**	**Nan, Inc.**	115,805,845	15,743,885	131,549,730	*130,422,037*	99%	01/27/16	05/17/19	04-2020	
DBB385	**Ramp H2R2**	**Royal Contracting**	5,203,646	332,250	5,535,896	5,535,896	100%	05/18/15	10/02/16	11/2017	
DBB505	**Airport Utilities DBB**	**Nan, Inc.**	27,993,290	726,200	28,719,489	28,719,489	100%	06/30/14	02/06/16	10/07/16	
DBB525	**Airport GW 7-Pier DBB**	**HDCC/CJA JV**	3,973,000	54,843	4,027,843	4,027,843	100%	09/18/14	02/28/15	04/24/15	**Closed**
DBB511	**City Center Utilities Relocation Construction**	Nan, **Inc**.	400,000,000	0	400,000,000	*97,830,459*	*25%*	05/31/18	05/31/20	05/31/22	**In the process of being closed.**
DBB602	**UHWO Temp Park & Ride /Road B**	**Nan, Inc.**	11,589,300	1,955,559	13,544,859	13,544.859	100%	12/15/17	7/16/2019	1/2020	
DBOM920	**Core CSC DBOM**	**Ansaldo/Honolulu JV**	573,782,793	212,522,937	786,305,730	*$509,272,119*	*65%*	11/28/11	03/15/19	1/2025	**Schedule will be revised to reflect CAM dates when better information is available.**
FD140	**WOSG FD**	**AECOM**	7,789,000	6,927,995	14,716,995	*14,641,253*	*100%*	06/15/12	11/14/16	5/2020	**Term of contract until completion of services**
FD240	**FHSG FD**	**AECOM**	9,300,696	7,997,120	17,297,816	*17,129,635*	99%	01/12/11	11/14/16	3/2020	**Term of contract until completion of services**
FD340	**KHSG FD**	**Anil Verma, Inc.**	8,702,592	6,381,037	15,083,629	*14,381,022*	*95%*	11/16/12	06/14/17	11/30/19	**Term of contract until completion of services**
FD430	**Airport GW & Util. FD**	**AECOM**	38,840,960	4,111,440	42,952,400	42,371,374	99%	12/22/11	8/2013	06/30/17	**Closeout ongoing**

CPP	Description	Contractor	Original Contract Value	CCO	Current Contract Value	Expended	% Exp.	Award Date	Original Completion Date	Revised Completion Date	Notes
FD440	**ASG FD**	**AECOM**	10,177,365	(117,545)	10,059,820	10,059,820	100%	11/07/12	01/27/14	07/01/15	**Closeout ongoing**
FD530	**CC GW & Util FD**	**AECOM**	43,948,220	23,853,824	67,802,044	65,086,084	96%	07/30/12	03-2014	12/2023	**Contract modification needed to account for additional design scope.**
FD550	**DKSG FD**	**Perkins & Will**	18,321,918	(5,980,353)	12,341,565	12,341,535	100%	08/08/13	11/01/14	01/15/16	**Closeout ongoing**
MI900	**Fare Collection DFI**	**INIT**	15,464,198	*1,360,540*	*16,824,738*	*10,204,847*	*61%*	3/2016	01/14/29	01/14/29	
FD701	**KH Civil Design**	**Lyon Associates**	60,000	0	60,000	60,000	100%	01/28/18	01/31/19	01/31/19	
MI930	**Elevators & Escalators**	**Schindler**	52,652,738	7,905,131	60,557,869	*32,078,664*	*53% 54%*	07/31/13	05/01/18	12-2023	**Schedule may be delayed due to revised CAM dates.**
MM290	**CEI West**	**PGH Wong**	54,232,480	38,900,000	93,132,480	92,622,739	100%	01/09/14	01/08/20	12/2020	
MM595	**CEI East**	**AECOM**	63,083,417	(50,372,051)	12,711,366	12,711,366	100%	01/07/14	01/06/19	01/06/16	
MM596	**CEI East 2**	**Stantec**	55,036,130	*$62,000,000*	*117,036,130*	*100,152,307*	*86%*	9/10/2015	12/31/19	12/2021	**Option for up to 2-year extension**
MM901	**PMSC-2**	**HDR**	33,376,897	16,359,765	49,736,662	49,736,662	100%	02/23/12	03/07/15	03/07/17	**Closeout Ongoing**
MM902	**PMSC-3**	**HDR**	63,522,953	0	63,522,953	*52,938,260*	*83%5t*	1/1/2017	12/31/22	12/31/22	
MM905	**GEC 1**	**PB**	0	75,995,982	75,995,982	75,995,982	100%	8/24/2007	02/09/10	02/26/11	**Closeout Ongoing**
MM910	**GEC 2**	**PB**	150,226,265	0	150,226,265	150,226,265	100%	6/30/2011	12/31/14		**Closeout Ongoing**
MM913	**GEC 3**	**CH2M**	46,143,277	38,585,498	84,728,775	*78,618,410*	*93%*	12/05/13	04/04/19	4/2022	**Option for up to 3-year extension**
MM945	**On-Call Contractor**	**Royal Contracting**	1,000,000	999,983	1,999,983	1,999,983	100%	08/06/14	07/06/19	12/08/16	**Closeout Ongoing**
MM946	**On-Call Hazmat Removal**	**CH2M**	12,006,227	1,830,471	13,836,698	9,597,369	69%	02/2018	02/2023	02/2023	
MM947	**On-Call Contractor 2**	**Royal Contracting**	7,500,000	0	7,500,000	7,495,425	100%	5/21/2015	05/20/20	05/20/20	
MM948	**On-call Contractor 3**	**Royal Contracting**	20,000,000	6,000,000	26,000,000	25,873,438	100%	05/09/16	05/12/23	05/12/23	
MM949	**On-call Contractor 4**	**Royal Contracting**	46,000,000	18,100,000	64,100,000	*54,286,295*	*85%*	01/10/18	11/30/24	11/30/24	

CPP	Description	Contractor	Original Contract Value	CCO	Current Contract Value	Expended	% Exp.	Award Date	Original Completion Date	Revised Completion Date	Notes
MM951	**OCIP**	**AON**	41,000,000	11,094,556	52,094,556	53,440,709	103%	4/9/2014	04/2020	3/2019	
MM962	**CSC Support**	**Lea + Elliott**	43,988,989	33,784,957	77,773,946	*61,832,027*	*80%*	2/10/2014	09/09/19	09/2022	
MM964	**Safety & Security Cons.**	**Lawson**	21,699,279	4,038,191	25,737,470	22,139,481	% 86%	04/23/14	01/31/17	01/31/19	

Appendix E Rolling Stock Vehicle Status Report

- **Manufacturer/Model Year/Vehicle Model or Type/Propulsion**: Hitachi Rail/2016/Metro Honolulu/AC Propulsion
- **Piggyback or Option**: Original Contract
- **Number of Vehicles**: 20 Trains (4 car train)
- **Contract Advertisement Date**: RFP Part 1 for CSDBOM Contract was issued on April 8, 2009
- **Contract Award Date**: March 21, 2011
- **Price per Vehicle (Initial Order):** $18,003,260 (per 4- car train)
- **Planned date of First Vehicle Delivery/Actual**: Planned: March 2016/Actual: March 30, 2016
- **"Initial" Vehicle Order:** (Number of Vehicles and Configuration): 40 Two-car trains (80 cars)
- **"Final" Vehicle Order**: 20 Four-car Consists (80 cars)
- **Number of Option Vehicles included in Contract**: Zero
- **Buy America Domestic Content Percentage Required**: 60%
- **Domestic Content Percentage per Pre-Award Audit**: 69%
- **Latest Domestic Content Percentage Reported and Date**: 59% - BAC Report #83 November 30, 2020 (retrofit is ongoing)
- **Date of Pre-Award Audit:** April 4 thru April 6, 2011
- **Pre-Award Audit Date**: October 17, 2011
- **Intermediate Buy America Audit Date**: March 23 thru March 25, 2015
- **Date of Post-Delivery Audit**: June 4 thru June 8, 2018
- **Post-Delivery Audit Report Date**: October 18, 2018

Appendix F: Project Milestones/Key Events

Milestone	Date (Projected or Actual)	Comments
Approval Entry to PE	10/2009	Estimated RSD at Entry to PE: 03/2019
Approval Entry to FD	12/2011	Estimated RSD at Entry to FD: 03/2019
Request for FFGA	06/2012	Estimated RSD at Request for FFGA: 03/2019
FFGA	12/2012	RSD at FFGA: 01/2020
Award of First Construction Contract	11/11/2009	DB 120 West Oahu/Farrington Highway Guideway
Delivery of first Vehicle	04/16/2016	All vehicles needed for the Initial service are on the island and are being used for pre-revenue service testing.
HART Proposed Recovery Plan	09/2017	RSD at Recovery Plan: 12/2025
FTA Approved Recovery Plan	11/2018	RSD at Recovery Plan: 09/2026
FTA Approved Recovery Plan Amendment	06/2019	Amendment to commit City funds to the project.
Projected Revenue Service Date for Segment 1	04/2022	Delayed from December 2020 initial estimate.
Delivery of Final Train for Full Revenue Service	February 2022	All trains needed for first segment are available.
System Integration Testing Complete for Segment 1	August 2021	Seven tests will need to be completed during Trial Running
Trial Running Complete for Segment 1	April 2022	
Projected Revenue Service for Segment 2	12/31/2023	
NTP for Final Major Construction Contract	12/31/2024	City Center Guideway and Stations (CCGS)
Substantial Completion of CCGS	6/30/2028	
Start of Trial Running	07/17/2028	
Current Schedule for RSD	March 2031	Schedule contains 16 months of contingency

Appendix G: Roadmap to Revenue Service

HART intends to open the project in three phases.

- The Phase One segment (shown in yellow and orange on map in Appendix H) is the western most section and includes the Maintenance and Storage Facility (MSF). Segment one includes nine stations and is approximately ten miles long. It begins with the western most station, Kualaka'i at East Kapolei, and ends at the Hālawa at Aloha Stadium Station. This segment was originally intended to open in December 2020 but has been delayed until no earlier than April 2022.
- The Phase Two segment (shown in blue on map in Appendix H) picks up at Hālawa Station and extends past the airport station and terminates at the Kahauiki at Middle Street (Kalila Transit Center) Station. This Segment includes four stations. It is expected to open in March 2024.
- The Phase Three segment (shown in red on map in Appendix H) includes eight stations ending at the Kalia at Ala Moana Station. This segment is the least progressed and is currently expected to open in March 2031.

Appendix H: Project Overview and Maps

Date:	*October 2021*	
Project Name:	Honolulu Rail Transit Project	
Grantee:	City and County of Honolulu	
FTA Regional contact:	Ryan Fujii, Region 9 Engineer	
FTA HQ contact:	Chris Hudson, COR	
SCOPE		
Description	The proposed Project is an approximately 20-mile rail alignment extending from East Kapolei to Ala Moana Center.	
Guideway	The majority of the Project is to be built on aerial structure, but the Project also includes a short at-grade section (0.6 miles).	
Stations	21 stations (20 aerial and 1 at-grade)	
Support Facility	Maintenance and Storage Facility (located near Leeward Community College)	
Vehicles	80 light metro-rail in 20 four-car consists	
Ridership	104,300 weekday boardings in 2019; 119,600 weekday boardings in 2030	
SCHEDULE	10/2009 Approval Entry to PE:	03/2019 Estimated RSD at Entry to PE
	12/2011 Approval Entry to FD:	03/2019 Estimated RSD at Entry to FD
	06/2012 Request for FFGA	03/2019 Estimated RSD at Request for FFGA
	12/2012 FFGA	01/2020 RSD at FFGA
	09/2017 Recovery Plan	12/2025 RSD at Recovery Plan
	11/2018 Recovery Plan	09/2026 RSD at Recovery Plan
COST	$5.348 B Total Project Cost ($YOE) at Approval Entry to PE	
	$5.126 B Total Project Cost ($YOE) at Approval Entry to FD	
	$5.122 B Total Project Cost ($YOE) at request for an FFGA	
	$5.122 B Total Project Cost ($YOE) at FFGA	
	$9.139 B Total Project Cost ($YOE) at 2018 Recovery Plan (June 2019 Update)	
	$4.908 billion = Amount of Expenditures at date of this report	
	43.2% complete (Total Project Expenditures/EAC)	

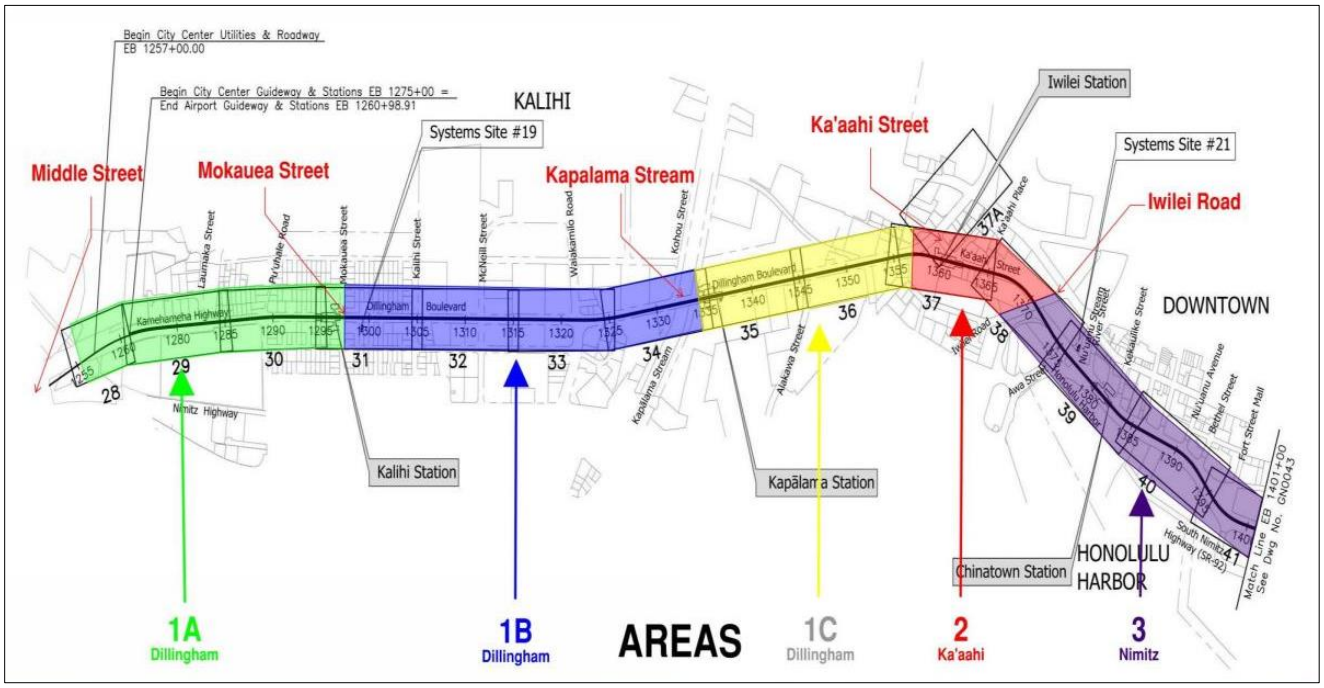
Notes

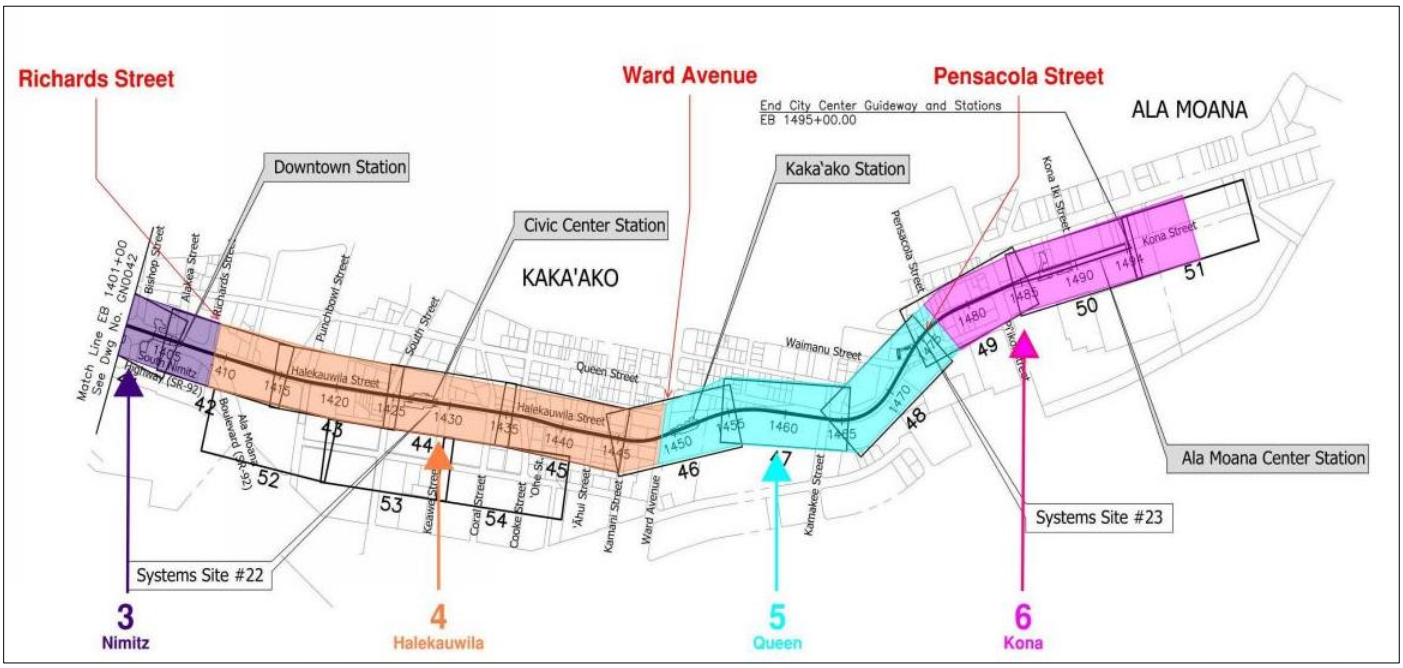
FTA and PMOC reviewed HART's Recovery Plan dated September 2017. A Risk Refresh Workshop was held February 27, 2018 to address HART's updated Estimate at Completion (EAC) and MPS that were provided in December 2017. That workshop predicted a p50 level budget of $8.299 billion (excluding financing costs) and a 65% confidence level for RSD no earlier than September 2026.

Based on the Risk Refresh, FTA directed HART to revise the Recovery Plan to include a new RSD of September 2026 and add $134 million of contingency. In June 2019 HART submitted an updated Recovery Plan that includes the revised RSD and budget ($9.139 Billion).

HART's current EAC of $11.37 billion exceeds the approved recovery plan value. HART must refresh its recovery plan to reflect the revised cost and identify the budget to complete.


Honolulu Rail Transit Project Map
KEONE'AE
University of Hawai'i West O'ahu
KUALAKA'I
East Kapolei
HONOULULI
Ho'opili
HŌ'AE'AE
West Loch
POUHALA
Waipahu Transit Center
HĀLAULANI
Leeward Community College
H2 Access Ramp
Rail Operations Center
WAIAWA
Pearl Highlands
KALAUAO
Pearlridge
HĀLAWA
Aloha Stadium
MAKALAPA
Joint Base Pearl Harbor-Hickam
LELEPAUA
Daniel K. Inouye International Airport
ĀHUA
Lagoon Drive
KAHAUIKI
Middle Street - Kalihi Transit Center
MOKAUEA
Kalihi
NIUHELEWAI
Honolulu Community College - Kapālama
KŪWILI
Iwilei
HŌLAU
Chinatown
KULOLOIA
Downtown
KAʻĀKAUKUKUI
Civic Center
KŪKULUAE'O
Kaka'ako
KĀLIA
Ala Moana
0 0.5 1 2 Miles
N
Legend
RAIL STATION
BUS TRANSIT CENTER
KISS-AND-RIDE
PARK-AND-RIDE
WEST OAHU/FARRINGTON HIGHWAY SECTION
KAMEHAMEHA HIGHWAY SECTION
AIRPORT SECTION
CITY CENTER SECTION


Begin City Center Utilities & Roadway EB 1257+00.00
Begin City Center Guideway & Stations EB 1275+00 = End Airport Guideway & Stations EB 1260+98.91
KALIHI
Systems Site #19
Middle Street
Mokauea Street
Kapalama Stream
Ka'aahi Street
Iwilei Station
Systems Site #21
Iwilei Road
DOWNTOWN
Kamehameha Highway
Dillingham Boulevard
Nimitz Highway
Kalihi Station
Kapālama Station
Chinatown Station
HONOLULU HARBOR
1A Dillingham
1B Dillingham
AREAS
1C Dillingham
2 Ka'aahi
3 Nimitz


Richards Street
Ward Avenue
Pensacola Street
End City Center Guideway and Stations EB 1495+00.00
ALA MOANA
Downtown Station
Civic Center Station
Kaka'ako Station
KAKA'AKO
Halekauwila Street
Queen Street
Waimanu Street
Kona Street
Ala Moana Center Station
Systems Site #22
Systems Site #23
3 Nimitz
4 Halekauwila
5 Queen
6 Kona

Appendix I: PMOC Team

Name	Position	Background
Michael Radbill, PE	Program Manager	Overall responsibility for Hill's PMO program. Mr. Radbill has over 40 years of technical and management experience in the construction of Federal, state, local, and private projects, which types include public transportation, power generation, petrochemical, correctional, military, aviation, commercial, hotel, and others. Mr. Radbill was Task Order Manager for oversight of major rehabilitation projects undertaken by the Washington Metropolitan Area Transit Authority. Mr. Radbill helped to develop and taught as lead instructor the National Transit Institute's Management of Transit Construction projects for 12 years and as assistant instructor for the NTI course Quality Assurance and Quality Control for Transit Projects for two years.
Danny Rogers, PE	Task Order Manager II	Responsible for oversight of this task order. He has more than 30 years of experience managing a wide variety of multidisciplinary engineering projects in the transit and highway fields. His transit experience includes Bus Rapid Transit and light rail projects. The majority of his transit work has been in the North Carolina, including work with the North Carolina Department of Transportation, Charlotte Area Transit System and GoTriangle. The last fifteen years Mr. Rogers served as the Project Director for New Starts Projects for the CATS Blue Line Extension and then most recently with the GoTriangle Durham-Orange Light Rail Project.
Derek Starling, PE, PMP, CQE	Quality Manager	Mr. Starling has 20 years of experience in Quality Assurance management. For the U.S. Army Corps of Engineers, he serves as Program/Quality Manager for evaluation of rail facilities at sites under the control of U.S. Army Installation Management Command (IMCOM), Army Material Command (AMC), Defense Logistics Agency (DLA), NAVFAC, and NASA. He also served as Corporate Director of Quality, responsible for 19 facilities in the U.S., Mexico, and China. He oversaw Quality Management of facility planning and design, construction, and start-up. He also developed the corporate supplier management program to verify supplier development, readiness, and performance guidelines.
Aaron Aston, CEP, LEED AP (BD+C)	Cost Estimation Manager	Responsible for oversight of cost estimating and cost control. Mr. Aston has over 30 years of experience in the construction industry as a cost estimator and cost analyst. For Sound Transit's Federal Way Link Extension, he was the Senior Cost Estimator tasked with preparing an independent cost estimate for preliminary engineering (30%) documents. For Sound Transit's East Link, Mr. Aston was the Cost Estimating Manager responsible for supervising the development of the cost estimate

Name	Position	Background
		for this design-build, 1.7-mile new light rail construction project, serving the nearby Microsoft campus. Mr. Aston was the Cost Estimating Manager / Lead Estimator responsible for supervising and assisting in the development of the cost estimates for the 30%, 60%, 90% and 100% design phase submittals for Sound Transit's Edmonds Commuter Rail Station (Edmonds, WA)
Paul Rudderow, PSP	Project Scheduling Manager	For the Chicago Transit Authority's proposed $207M improvements to signals and special track work from Jefferson Park to O'Hare Airport on the Blue Line replacing the signal and interlocking system over the eight miles of track from Jefferson Park Interlocking to the terminal at O'Hare Airport, Mr. Rudderow served as a Schedule Analyst. He is responsible for the review of the client master schedule, analysis of the contractor's monthly schedules, and the overall monthly cost and resource reviews Serves as a technical resource and subject matter expert in transit project scheduling. On the MTA/Metro-North Railroad Capital Program, New York, NY, Mr. Rudderow served as Schedule Analyst and was responsible for the review and analysis of the contractor's monthly schedules, and the overall monthly cost and resource reviews. Provided scheduling expertise in the oversight of FTA-funded project. Reviewed the grantee's schedule and supporting documentation to ensure that projects were built safely, on budget, on schedule, within scope, and in conformance with applicable regulations and guidelines. Served as a technical resource and subject matter expert. Demonstrated scheduling experience in the development and maintenance of Critical Path Method (CPM) schedules on large capital projects. Mr. Rudderow is an expert in the usage of project scheduling software, and is fully familiar with rail/transit planning, scheduling, project monitoring, and project management.
Dain Pankratz, PE	Systems Safety Manager	Mr. Pankratz is responsible for oversight of safety and security activities. He is a Registered Professional Engineer (M-34042) in California and is a nationally Certified Safety Professional (CSP), CSP-29902. On the 61-mile Central Florida Commuter Rail Transit Project, he was the Systems Safety Manager supporting oversight of safety and security design, construction, testing and startup. Mr. Pankratz was also the Systems Safety Manager supporting oversight of safety and security design, construction, testing and startup on MWAA's Dulles Corridor Metro Project, a 23.1-mile rapid transit system in Northern Virginia with total budget estimated over $7 billion. Mr. Pankratz is the Systems Safety Manager supporting oversight of.

Name	Position	Background
Dave Coury, PE	Rail Transit Signal & Control Systems Engineer I	Mr. Coury has over 38 years of engineering experience in mass transit engineering and management. Mr. Coury's experience includes: railway signaling design and procurement from specification through start-up including testing and certification, as well as a comprehensive review of testing reports and their results; design of advanced communications based train control systems (CBTCs) as well as the integration of those systems; management of the procurement and commissioning of transit vehicles; engineering oversight on several on-call engineering projects; and management and engineering oversight of several car-borne Advanced Train Control (ATC) projects.
Arun Virginkar	Vehicle Engineer	Responsible for oversight of rail vehicle engineering and Buy America compliance. He has been involved with the PMOC Program since 1994. He has experience in contract management, vehicle and systems equipment engineering, operations and maintenance planning, system integration and testing, safety certification plans, and quality and system assurance. He also has specialized experience in Buy America Pre-Award and Post-Delivery audits of car builders.
Bob Merryman, Licensed Real Estate Appraiser (Missouri)	Real Estate Manager	Responsible for oversight of real estate activities on the project. He has 35 years of practical experience in the implementation of the Uniform Act in federally funded projects. In addition, he has written three textbooks used by FHWA, as well as the one additional course text used by the FTA discussing the implementation of the Uniform Act. He also served as lead investigator on the business retrospective study for the Federal Highway Administration. The information gleaned from this investigation was to develop the most recent revisions to 49 CFR Part 24.
Deborah Boe, PE	Risk Assessment Manager II	Ms. Boe has over 45 years total experience and 23 years' experience in risk management. Notable projects for which she served as risk manager include the Purple Line Light Rail project in the national capital region, the Red and Blue Line Platform Extension project for DART in Dallas, and the Mid-Coast Corridor Transit Project for SANDAG in San Diego. Ms. Boe was selected by HQ FTA to (1) contribute to FTA's Risk Assessment Standard Guidelines, (2) evaluate the effect of project delivery method on oversight including risk assessments, (3) analysis of the FAST Act as related to oversight and risk evaluation, and (4) update and rewrite FTA's Oversight Procedure 40 - Risk and Contingency Review.

Appendix J: Third Party Agreements

Agency	Pending Agreements	Target	Section	CROE*	Notes/Remarks
STATE					
UH – University of Hawaii, West Oahu (UHWO-125) East Kapolei	Construction Right of Entry and Occupancy & Use (CROE) Agreement for East Kapolei Temporary Park & Ride	*TBD/ Estimate 4th Quarter 2021*	WOFH	Yes	*Master Use and Occupancy Agreement finalized and approved by City Council on 9/8/21. UH and HART signatures finalized on 9/24/21 and submitted to City. Submitted to HECO on 9/29/21 for execution. Interim Park and ride (300 spaces) completed. 3rd Amendment to CROE has been fully executed. It allows for installation of electrical connections from Road B to station area and subsequently into interim parking.*
UH – Urban Gardens (201A	Conveyance to HDOT(H) – Dept. of Transportation Highways	December 2021	KHG	Yes	*No change.*
UH – Honolulu Community College (HCC) (424A)	Construction Right of Entry for guideway & station	*November 2021*	CC	No	*Master Use and Occupancy Agreement finalized and approved by City Council on 9/8/21. UH and HART signatures finalized on 9/24/21 and submitted to City. Submitted to HECO on 9/29/21 for execution.*

Agency	Pending Agreements	Target	Section	CROE*	Notes/Remarks
DLNR – Dept. of Land & Natural Resources (124)	Easement Agreement for overhead guideway and easement / long term ground lease for park and ride facility	December 2021	WOFH	Yes	*No change.*
DLNR/C&C Wastewater Div.	Easement Agreement	December 2021	CC	Yes	*No change.*
DOE - Waipahu HS (118)	Permanent Easement (State portion)	November 2021	WOFH	Yes	*No change.*
DOE – Waipahu HS (117)	Permanent Easement (City portion)	April 2022	WOFH	Yes	*No change.*
Aloha Stadium / Dept. of Accounting & General Services (DAGS)	Easement Agreement for guideway	April 2022	KHG	Yes	Station and Guideway easements will be done in fall of 2021. DLNR and HECO are working on Grant of Easement template for HECO easements.
Aloha Stadium/ DAGS	Ground Lease Agreement for bus interface and shared parking area	December 2021	KHG	Yes	No change.
HDOT(H) – Dept. of Transportation Highways	Master Agreement Amendment	2021	WOFH	Yes	No change.

Agency	Pending Agreements	Target	Section	CROE*	Notes/Remarks
HDOT(H)	Joint Use & Occupancy (JU&O) Sub-agreement	2021	WOFH	Yes	No change.
HDOT(H)	Joint Use & Occupancy (JU&O) Sub-agreement	2021	CC		No change.
HCDA -HI Community Development Authority	Construction ROE, License Agreement, & Final Disposition	2021	CC		No change.
DAGS – Dept. of Accounting & General Services / Hi Housing Finance & Development Corp (HHFDC)	Construction Right of Entry for City Center for Liliha Civic Center.	November 2021	CC		A street is being designed substantially within the footprint of Easement U as requested by DAGS as a precondition to ROE. Negotiations have been put on hold until there is a contractor with which to negotiate. Survey for staffing area being conducted and street concept plan undergoing refinement. Storm drain work was completed through a series of temporary CROEs obtained from DAGS. Appraisal has been ordered as a back-up plan to pay DAGS just compensation for real property rights acquired.
DAGS (441-A)	Guideway and Utility Agreement	August 2021	CC		No Change.
DAGS (443-A)	Utility, Guideway and TCE Agreement	November 2021	CC	No	*No change.*
DAGS (443-B)	Utility, Guideway and TCE Agreement	December 2021	CC	No	*No change.*

Agency	Pending Agreements	Target	Section	CROE*	Notes/Remarks
Kalihi Kai Elementary (501)	Right of Entry from DOE/DLNR	November 2021	City Center		No change.
Kalihi KAI Elementary (501)	Easement Agreement	December 2021	City Center		*No change.*
State of Hawaii	Easement Agreement	Pending	City Center		No change.
FEDERAL					
USPS (301)	Permanent Easement	2021	Airport	Via GOE	*No change.*
U.S. Gov't/General Services Administration (GSA)/Federal Courthouse	Master Agreement to include Security & Landscape License Agreement, Utility License Agreement, Guideway License Agreement	November 2021	CC		*First amendment to Master Agreement and associated design documents in progress.*
GSA Federal Courthouse	Quitclaim Easement Documents for Utility and Guideway Easements	November 2021	CC		*See above.*
CITY AGREEMENTS					
BFS – Dept. of Budget & Fiscal Services (204A)	Inter-Agency coordination which may take the form of a ROE, letter of agreement, or license (Continental Investment)	2021	KHG	Via intra-agency coordination	No change.
DFM (423A)	Easement Agreement for Utilities	2021	City Center		No change.

Agency	Pending Agreements	Target	Section	CROE*	Notes/Remarks
DTS – Department of Transportation Services (322)	Intra-agency coordination which may take the form of a ROE, letter agreement, or license (Middle Street Station)	2021	AGS	Via Intra-agency coordination	No change.
OTHER					
D.R. Horton (101B)	License Agreement for interim Park and Ride, MOU, Easement Agreement – D.R. Horton & HECO	December 2022	WOFH	Yes	*DTS is finalizing the license agreement for the interim Park and Ride and is obtaining proof of insurance from the City of Honolulu. Easement Agreement drafts are being finalized with COR to submit to D.R. Horton. MOU draft under review.*
D.R. Horton	Final Easement Agreement	April 2022	WOFH	Yes	*See above.*

*CROE – Construction Right of Entry

Appendix K: Cost Comparison Tables

SCC	Description	RECOVERY PLAN BUDGET			HART ESTIMATE AT COMPLETION			Incurred
		Base Cost	Contingency	Total	Base Cost	Contingency	Total	
10	Guideway & Track Elements (Route Miles)	1,385,613,350	222,868,325	1,608,481,675	*1,874,574,711*	*183,349,780*	*2,057,924,491*	*1,022,957,760*
10.02	Guideway: At-grade semi-exclusive (allows cross-traffic)	17,378	0	17,378	0	0	0	17,378
10.04	Guideway: Aerial structure	1,243,170,339	214,668,325	1,457,838,664	1,782,701,311	*181,284,859*	*1,963,986,170*	*923,353,292*
10.05	Guideway: Built-up fill	0	0	0	0	0	0	5,054,744
10.06	Guideway: Underground Cut and Cover	0	0	0	0	0	0	(1,228,000)
10.08	Guideway: Retained cut or fill	142,425,633	8,200,000	150,625,633	0	0	0	0
10.09	Track: Direct fixation				91,873,400	*2,064,921*	*93,938,321*	*91,835,096*
10.11	Track: Ballasted				0	0	0	2,394,373
10.12	Track: Special (switches, turnouts)				0	0	0	1,530,876
20	Stations, Stops, Terminals, Intermodals	740,278,879	91,423,195	831,702,074	1,799,211,443	*403,139,213*	*2,202,350,656*	*346,753,119*
20.01	At-grade station, stop, shelter, mall, terminal, platform	4,956,181	8,505,325	13,461,506	11,510,875	*239,871*	*11,750,746*	11,460,590
20.02	Aerial station, stop, shelter, mall, terminal, platform	548,219,008	54,496,453	602,715,461	1,667,561,845	*368,066,221*	*2,035,628,066*	*313,955,548*
20.04	Other stations, landings, terminal	0	0	0	0	0	0	0
20.06	Automobile parking multi-story structure	121,609,473	26,632,475	148,241,948	70,000,000	30,000,000	100,000,000	0
20.07	Elevators, escalators	65,494,217	1,788,942	67,283,159	50,138,724	4,833,120	54,971,844	*21,336,981*
30	Support Facilities: Yards, Shops, Admin. Bldgs.	100,806,854	0	100,806,854	149,073,495	918,141	149,991,636	122,597,692
30.01	Administration Building	0	0	0	0	0	0	231,250
30.02	Light Maintenance Facility	3,057,240	0	3,057,240	0	0	0	7,582,704
30.03	Heavy Maintenance Facility	64,479,556	0	64,479,556	46,894,525	342,855	47,237,380	46,295,366
30.04	Storage or Maintenance of Way Building	8,619,230	0	8,619,230	67,494,488	36,090	67,530,203	8,922,739
30.05	Yard and Yard Track	24,650,828	0	24,650,828	34,684,481	539,197	35,223,678	59,565,633
40	Sitework & Special Conditions	2,315,294,490	230,442,932	2,545,737,422	*2,275,001,924*	*375,274,296*	*2,650,276,220*	*1,253,597,225*
40.01	Demolition, Clearing, Earthwork	33,446,029	1,038,000	34,484,029	3,974,126	145	3,974,271	5,000,112
40.02	Site Utilities, Utility Relocation	784,993,474	97,126,874	882,120,348	1,010,193,557		*1,180,546,013*	*281,094,184*

SCC	Description	RECOVERY PLAN BUDGET			HART ESTIMATE AT COMPLETION			Incurred
		Base Cost	Contingency	Total	Base Cost	Contingency	Total	
						170,417,456		
40.03	Haz. mat'l, contam'd soil removal/mitigation, ground water treatments	33,829,683	515,000	34,344,683	41,319,599	*2,550,875*	*43,786,572* *43,870,474*	*29,409,166*
40.04	Environmental mitigation, e.g., wetlands, historic/archeologic, parks	5,518,864		5,518,864	18,909,802	*227,998*	*19,137,800*	15,608,579
40.05	Site structures including retaining walls, sound walls	21,764,985	6,884,511	28,649,496	*10,188,024*	*26,934*	*10,214,958*	13,333,291
40.06	Pedestrian / bike access and accommodation, landscaping	14,744,276	500,000	15,244,276	*12,928,834*	*612,327*	*13,541,161*	*3,292,683*
40.07	Automobile, bus, van access ways including roads, parking lots	264,580,524	29,237,568	293,818,092	*190,785,904*	*46,443,624*	*237,229,528*	*131,426,620*
40.08	Temporary Facilities and other indirect costs during construction	1,156,416,655	95,140,979	1,251,557,634	*986,767,076*	*154,994,937*	*1,141,762,013*	*774,432,590*
50	Systems	313,983,939	16,033,668	330,017,607	318,313,326	*78,606,421*	*396,919,746*	*193,526,701*
50.01	Train control and signals	157,077,732	7,756,522	164,834,254	113,252,094	24,062,357	*137,314,249*	*78,541,982*
50.02	Traffic signals and crossing protection	3,172,131	598,725	3,770,856	369,497	(886)	368,611	201,070
50.03	Traction power supply: substations	32,396,808	0	32,396,808	79,249,143	*28,001,213*	*107,250,355*	*13,735,483*
50.04	Traction power distribution: catenary and third rail	37,120,977	0	37,120,977	54,638,255	8,219,657	62,857,912	47,596,042
50.05	Communications	65,390,742	0	65,390,742	53,533,072	*11,253,736*	*64,786,808*	*39,233,170*
50.06	Fare collection system and equipment	15,015,206	7,678,421	22,693,627	12,808,734	6,301,608	19,110,342	*10,531,474*
50.07	Central Control	3,810,343	0	3,810,343	4,462,531	*768,938*	*5,231,469*	3,687,479
	CONSTRUCTION SUBTOTAL (10 - 50)	4,855,977,512	560,768,120	5,416,745,632	*6,416,174,899*	*1,041,287,850*	*7,457,462,749*	*2,939,432,497*
60	ROW, Land, Existing Improvements	254,835,574	106,789,890	361,625,464	*393,995,875*	*143,275,099*	537,270,974	*193,862,742*
60.01	Purchase or lease of real estate	171,400,000	101,500,000	272,900,000	*393,995,875*	*143,275,099*	537,270,974	*193,584,942*

SCC	Description	RECOVERY PLAN BUDGET			HART ESTIMATE AT COMPLETION			Incurred
		Base Cost	Contingency	Total	Base Cost	Contingency	Total	
60.02	Relocation of existing households and businesses	83,435,574	5,289,890	88,725,464	0	0	0	277,800
70	Vehicles	211,389,952	0	211,389,952	189,859,841	42,703,683	232,563,524	*173,313,093*
70.01	Light Rail	190,383,694	0	190,383,694	1,219,858	2,180,142	3,400,000	
70.02	Heavy Rail	0	0	0	175,613,435	37,725,185	213,338,620	*160,646,401*
70.05	Other	128 ,700	0	128,700	0	0	0	493,700
70.06	Non-revenue vehicles	14,371,344	0	14,371,344	13,026,548	2,798,356	15,824,904	12,172,992
70.07	Spare parts	6,506,214	0	6,506,214	0	0	0	0
80	Professional Services	1,989,870,725	97,630,139	2,087,500,864	2,688,663,814	*232,956,499*	*2,921,620,313*	*1,515,771,784*
80.01	Preliminary Engineering	54,753,840	0	54,753,840	*95,343,461*	580,907	95,924,368	180,705,916
80.02	Final Design	584,149,899	31,512,697	615,662,596	619,896,884	*40,606,480*	*660,503,364*	*386,930,772*
80.03	Project Management for Design and Construction	668,557,925	29,851,833	698,409,758	802,382,346	82,466,604	884,848,950	*490,185,125*
80.04	Construction Administration & Management	278,640,420	28,220,008	306,860,428	931,706,611	95,446,110	1,027,152,721	*349,811,705*
80.05	Professional Liability and other Non-Construction Insurance	99,340,000	4,000,000	103,340,000	99,340,000	4,000,000	103,340,000	*56,046,746*
80.06	Legal; Permits; Review Fees by other agencies, cities, etc.	99,928,698	3,768,439	103,697,137	82,505,153	1,001,927	83,507,080	*39,629,589*
80.07	Surveys, Testing, Investigation, Inspection	141,686,622	277,162	141,963,784	18,668,530	515,000	19,183,530	*4,905,886*
80.08	Start up	62,813,321	0	62,813,321	38,820,830	*,339,470*	47,160,300	7,556,046
	90 SUBTOTAL (10 - 80)	7,312,073,763	765,188,149	8,077,261,912	*9,688,694,429*	*1,460,223,131*	11,148,917,560	*4,822,380,115*
	Unallocated Contingency	0	221,738,087	221,738,087	0	221,738,087	221,738,087	0
	100 SUBTOTAL (10 – 90)	7,312,073,763	986,926,236	8,298,999,999	*9,688,694,429*	*1,681,961,218*	11,370,655,647	*4,822,380,115*
100	Finance Charges	609,000,000	0	609,000,000	703,000,000	0	703,000,000	*85,370,574*
	TOTAL FFGA Project Cost (10 – 100)	7,921,073,763	986,926,236	8,907,999,999	*10391,694,429*	*1,681,961,218*	12,073,655,647	*4,907,750,689*